

10624938



US006422288B1

Ranel

(12) **United States Patent**
Dekker et al.

(10) Patent No.: **US 6,422,288 B1**
(45) Date of Patent: **Jul. 23, 2002**

(54) **VENETIAN BLIND WITH VARIABLE TILTING**

(75) Inventors: Nicolaas Dekker, Bergschenhoek;
Antonius Johannes Josephus Horsten,
Den Haag, both of (NL)

(73) Assignee: Hunter Douglas Industries B.V., El
Rotterdam (NL)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/853,952

(22) Filed: May 10, 2001

(30) Foreign Application Priority Data

May 19, 2000 (EP) 00201769

(51) Int. Cl.⁷ E06B 9/26

(52) U.S. Cl. 160/115

(58) Field of Search 160/115, 176.1 R,
160/168.1 R, 107, 114, 113, 173 R, 177 R

(56) References Cited

U.S. PATENT DOCUMENTS

1,365,919 A	1/1921	Jones	
2,116,356 A	5/1938	Laborda et al.	
2,427,266 A	9/1947	Ewing	
2,506,507 A	5/1950	Kiatta	
2,719,586 A	10/1955	Graham	
2,747,662 A	5/1956	Reiners et al.	
2,751,000 A	6/1956	Mahan	
4,921,032 A	5/1990	May	
4,940,070 A	7/1990	Warden	
5,472,035 A	12/1995	Biba et al.	
5,485,874 A *	1/1996	Whitmore	160/115
6,105,652 A *	8/2000	Judkins	160/115
6,318,439 B1 *	11/2001	Matsubara	160/115

FOREIGN PATENT DOCUMENTS

AU	410797	7/1969
DE	134151	8/1901

DE	69 36665	9/1969
EP	0 609 541	8/1994
EP	0 620 355	10/1994
EP	0 696 672	10/1999
GB	1093756	12/1967
JP	63-55595	11/1984
JP	8-210060	8/1996
JP	9-21282	1/1997
WO	98/27307	6/1998

* cited by examiner

Primary Examiner—David M. Purol

(74) Attorney, Agent, or Firm—Dorsey & Whitney LLP

(57) **ABSTRACT**

A venetian blind including vertically-extending slat-supporting ladders is described. Each ladder comprises (i) first and second vertical members connected by cross-rungs, (ii) slats, each slat being supported on a cross rung of each ladder, (iii) an adjusting mechanism for pivoting the slats about their longitudinal axes by moving the vertical members in opposite directions, (iv) a vertically-extending auxiliary tilt cord that is adjacent to the first vertical member, and (v) an engagement mechanism on the auxiliary tilt cord and the first vertical member for moving the first vertical member at an intermediate location along its length upwardly with upward movement of the auxiliary tilt cord to adjust the angular pivot of a section of the cross-rungs connected to the first vertical member above or below the intermediate location. The engagement mechanism including (a) a guiding loop on the first vertical member, (b) a bead fixed on the auxiliary tilt cord and vertically spaced away from the guiding loop and (c) an engaging collar slidably positioned on the auxiliary tilt cord between the guiding loop and the bead, the auxiliary tilt cord extending through the guiding loop. The bead is adapted to engage the engaging collar and move the engaging collar toward the guiding loop to engage the guiding loop when the auxiliary tilt cord is moved upwardly. The blind including a winding drum for winding the auxiliary tilt cord and moving the cord upwardly after the adjusting mechanism has moved the first and second vertical members in opposite directions.

23 Claims, 6 Drawing Sheets

